

PUBLIC HEALTH

Yellow Fever Danger Seen

Although the United States has been free of yellow fever for almost 40 years, there still exists a potential danger from this disease, Faye Marley reports.

► A 300,000-SQUARE-MILE area from North Carolina to Texas is expected to be the target of a U.S. Public Health Service pesticide program within six months to a year in a belated campaign to rid this country of the deadly *Aedes aegypti* mosquito that can cause urban yellow fever.

The Communicable Disease Center in Atlanta has been concerned for some time about the potential danger, and officials of PHS in Washington, D. C., told SCIENCE SERVICE that details should be worked out with state cooperation in 1963.

Dr. Fred L. Soper, special consultant, Division of International Health, and former director of the Pan American Sanitary Bureau, points out that the United States is almost alone in its failure to start eradication of this *aegypti* mosquito.

Since 1947 the Pan American Sanitary Bureau has been carrying on an eradication program, with the result that the fever-carrying mosquitoes have been wiped out in Bolivia, Brazil, Chile, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, Uruguay, British Honduras, French Guiana and the Panama Canal Zone.

But Dr. Raymond L. White, director of environmental medicine for the American Medical Association, points out that much of Latin America has an apparently inex-

haustible supply of the disease virus, which in spite of the large mosquito population of our South has been stamped out in the United States.

This is the danger: If the U.S. mosquitoes and the Latin American virus get together, a deadly epidemic of yellow fever could happen either here or there. Eradication of the virus-carrying mosquito is the only sure way to be safe.

Although there has been no reported case of yellow fever in the United States since 1924, and no epidemic since 1905, Dr. White says we have been lucky. Even with an effective vaccine, an immunization program takes time.

"Let's not forget," he warns, "that the virus is only hours away by air. It can be imported in the bloodstream of a traveler and seeded in our *aegypti* before anyone knows there is a case on the loose. Once the virus gets among our mosquitoes, we're in for big trouble."

Aedes aegypti breed in bits of water close to civilization—in barrels, tin cans, refuse heaps, cisterns, flower pots, vases, rain gutters and wet basements of the South. Extinction should be comparatively easy, but problems of expense as well as the effect of pesticide on humans must be worked out. *Aegypti* are susceptible to DDT.

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GENERAL SCIENCE

Thorium Rivals Uranium

► THERE IS FOUR TIMES as much thorium as uranium in the crust of the earth, and it may very well become the nuclear fission fuel and energy source of the future, Drs. A. S. Adams and John J. W. Rogers of Rice University, Houston, Texas, told the National Academy of Sciences in Austin, Texas.

With equal exploration effort in all parts of the earth, availability of thorium may approach or even exceed that of uranium, the academicians were told. The relative crustal abundance of thorium is 12 parts per million, compared with three parts per million for uranium.

It was previously thought that the greater availability of uranium was due to the greater effectiveness of natural mechanisms in concentrating uranium, although it may also have been due to greater exploration efforts on finding uranium, which has been purchased by the Government in order to encourage discovery and exploitation.

The abundant form of uranium can be turned into fissionable material such as

plutonium and thus used in atomic furnaces or nuclear reactors as well as in atomic bombs.

Thorium, one of the heavy metals, can be converted by neutrons into uranium-233, which is fissionable in the same way that plutonium and uranium-235 are.

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Bone Marrow Protects

► INJECTIONS of bone marrow will give protection against the effects of irradiation, which would kill otherwise within two weeks of experiencing lethal doses of X-rays or atomic radiation.

The National Academy of Sciences meeting in Austin, Texas, was told about experiments on chicks 17 days of age exposed to 1,800 roentgens of discontinuous X-irradiation. All died without treatment, but when there was intravenous injection of bone marrow from non-irradiated birds, the mortality was dropped to 6 percent if 16 percent concentration of injection material

was utilized for the treatment. The experiment was reported by Dr. R. C. Fanguy of A. and M. College of Texas and B. B. Bailey of Ralston Purina Company, Menlo Park, Calif.

If the protecting substance was obtained from birds of the same blood group, it was much more effective. If both the birds protected and the birds giving the protective substance were brothers and sisters in addition to being in the same blood group, the protection was even more effective.

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Queen-Making Substance

► THE QUEEN-MAKING substance in honeybee royal jelly has been separated. Experiments are underway to discover just how it produces the effect of developing into a queen the female egg, which without it would become a worker bee.

Dr. Nevin Weaver of the Texas Agricultural Experiment Station, College Station, reported to the National Academy of Sciences in Austin, Texas, that if royal jelly from which there has been extracted the queen-producing fraction is fed to the larvae they produce only normal workers or slightly queen-like workers. By adding royal jelly fraction, including the queen-making fractions, the same percentage of larvae develop into queens as develop on the whole, fresh royal jelly.

Absence of the royal jelly queen ingredient seems to destroy the growth or differentiation regulating mechanism in some of the larvae.

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Westinghouse

SPACE VACUUM CLEANER—Vacuums approximating those that tubes will encounter in outer space are simulated in the tube assembly shown. Vert Upshaw (right), and Sam Tomarchio of Westinghouse Astroelectric Laboratory, are manipulating remote control devices outside the bell jar tube assembly.